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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			MARTINEZ, CARLOS A	
			ART UNIT	PAPER NUMBER
			2853	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/774,367	OHKUBO, HIROKI	
	Examiner	Art Unit	
	Carlos A. Martinez	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-37 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-19 and 21-37 is/are rejected.
- 7) Claim(s) 20 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 February 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/10/2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 407 (refer to Fig. 8A).

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that

explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 and 15-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1-3 and 5, the use/meaning of “first mechanism exterior” and “second mechanism exterior” are unclear and/or does not appear to be presented in harmony with the specifications. As presented, the term “first mechanism exterior” and “second mechanism exterior” would seem to suggest that “first mechanism exterior” and “second mechanism exterior” refer to separate exterior mechanisms for use in configuration; however, according to the specifications, an operation panel/external input is the means of configuring both the first correction mechanism and the second correction mechanism where both correction mechanisms require the utilization of the same operation panel for being configured (refer to PGPUBS # 2004/0155953, paragraphs [0135], [0145], [0154], [0160]-[0165], [0176], and [0185] - [0187]). Therefore, as the claim language is indefinite to the Office, for the purpose of examination, these claims (Claims 1-3, and 5) will be interpreted to have “first mechanism exterior” and “second

mechanism exterior” to mean the same and in reference to an operation panel/external input, as set forth in applicant’s specifications.

Further, since claims 4, 6-7, and 15-16 are dependent on a rejected parent claim they are also rejected under 35 U.S.C. 1 12, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 11-14 the statutory category of the invention that is being claimed is indistinct because the preamble of the claims – which states “the optical writing system according to claim ” – suggest to render the claims as directed towards an apparatus; however, as the claims then further continue, the phraseology utilized such as “first selected difficulty level”, “second selected difficulty level”, “third selected difficulty level”, and “fourth selected difficulty level” would suggest that applicant is seeking to render the claims as being directed towards a process/method claims.

Therefore as the statutory category of the invention being claimed is indistinct, for the purpose of examination, these claims will be interpreted as apparatus claims.

Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 22, the word "means" is preceded by the word(s) "first" and "second" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claims 24-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 24-26 and 28, the use/meaning of "first control means" and "second control means" are unclear and/or does not appear to be presented in harmony with the specifications. As presented, the term "first control means" and "second control means" would seem to suggest that "first control means" and "second control means" refer to separate control means for use in configuration; however, according to the specifications, an operation panel/external input is the means of configuring both the first correction means and the second correction means where both correction means require the utilization of the same operation panel for being configured (refer to PGPUBS # 2004/0155953, paragraphs [0135], [0145], [0154], [0160]-[0165], [0176], and [0185] - [0187]). Therefore, as the claim language is indefinite to the Office, for the purpose of examination, these claims (Claims 24-26 and 28) will be interpreted to have "first control

means” and “second control means” to mean the same and in reference to an operation panel/external input, as set forth in applicant’s specifications.

Further, since claims 27, 29, and 30 are dependent on a rejected parent claim they are also rejected under 35 U.S.C. 1 12, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 34-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 34-37 the statutory category of the invention that is being claimed is indistinct because the preamble of the claims – which states “the optical writing system according to claim ” – suggest to render the claims as directed towards an apparatus; however, as the claims then further continue, the phraseology utilized such as “first selected difficulty level”, “second selected difficulty level”, “third selected difficulty level”, and “fourth selected difficulty level” would suggest that applicant is seeking to render the claims as being directed towards a process/method claims.

Therefore as the statutory category of the invention being claimed is indistinct, for the purpose of examination, these claims will be interpreted as apparatus claims.

Claim Objections

Claims 15 and 16 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The immediate claims (claims 15 and 16) make reference to "an image forming apparatus"; however, no mention has been made towards an image forming apparatus in the parent claim(s) which claim 15 and 16 are dependent. Rather, claim 1 is drawn towards an optical writing system which claims 15 and 16 do not further limit. Therefore, claims 15 and 16 fails to further limit the subject matter of a previous claim and is objected to.

Claims 17 and 18 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The immediate claims (claims 17 and 18) make reference to "an image forming apparatus"; however, no mention has been made towards an image forming apparatus in the parent claim(s) which claim 17 and 18 are dependent. Rather, claim 8 is drawn towards an optical writing system which claims 17 and 18 do not further limit. Therefore, claims 17 and 18 fails to further limit the subject matter of a previous claim and is objected to.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922).

- Nihei teaches an optical writing system (refer to Fig. 21 and paragraph [0044]) that has at least two laser diodes (refer to [0039] and [0176]); a polygonal mirror (refer to element 204 and 307; and also paragraphs [0171] and [0176]); a first correction mechanism configured to scan data of two laser diodes by one scanning movement with said polygonal mirror (refer to paragraph [0225]), and correct a dot forming position of a terminating edge in a main scanning direction by shifting arbitrarily a phase of a picture element clock (refer to paragraphs [0114] and [0038] – [0042]). Also Nihei teaches where the first correction mechanism is configured to be started by a first mechanism exterior to said optical writing system (refer to paragraphs [0113], [0114], and [0131]).
- It should be noted that Nihei mentions a second mechanism for correcting which involves a correction of an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to paragraphs [0200], [0201], and [0181]). Further, Suzuki also teaches a correction mechanism configured to correct an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to lines 5-30 of column 7).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei, with a

correction mechanism configured to correct an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width, as taught by Suzuki, for the purpose of providing a way to regulate the amount of deviation in response to any degrading of image quality due to shifting, misalignment, etc. of the light beams.

With respect to claims 15 and 16, no further limitation has been recited for the optical writing system. Rather, the applicant has recited the structure of the environment or the structure of other devices to be utilized with the optical writing system. Therefore, since no further limitation has been made to the optical writing system of the parent claim, the claims (claims 15 and 16) are rejected along with the parent claim (claim 1).

2. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922), as applied to claim 1 above, and further in view of Amada (US20030025782).

- Nihei (in view of Suzuki) teaches a second correction mechanism; however, Nihei (in view of Suzuki) fails to mention specifically where the second correction mechanism is configured to be started and stopped by the second mechanism exterior to the optical writing system.
- However, Amada teaches where the second correction mechanism is configured to be started and stopped by the second mechanism exterior to the optical writing system (refer to paragraph [0083]). It should be noted that the mention of manual

operation, using an external control, would obviously encompass the starting and stopping of a second correction mechanism.

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the second correction mechanism is configured to be started and stopped by the second mechanism exterior to the optical writing system, as taught by Amada, for the purpose of providing correction to an optical system as needed and when it is needed by an operator or user.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922), as applied to claim 2 above, and further in view of Amada (US20020149666).

- Nihei (in view of Suzuki) teaches where the first correction mechanism and the second correction mechanism are configured to be controlled; however, Nihei (in view of Suzuki) fails to mention specifically a separate controlling of the first and second correction mechanism.
- However, Amada teaches where a separate controlling of the first and second correction mechanism (refer to paragraphs [0024] and [0198]).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), for a separate controlling of the first and second correction mechanism, as taught by Amada, for the purpose of providing correction where needed towards

only the mechanism which requires adjustment rather than wasting resources on also making adjustments on a mechanism not requiring correction.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922), as applied to claim 1 above, and further in view of Takesue (US20020063770).

- Nihei (in view of Suzuki) teaches a first correction mechanism.
- However, Nihei (in view of Suzuki) fails to specifically mention where the first correction mechanism is configured to be stopped by the first mechanism exterior to the optical writing system.
- Takesue teaches a first correction mechanism that is configured to be stopped by the first mechanism exterior to the optical writing system (refer to paragraphs [0176]-[0179], and [0182]; note: that when the shifting step value is 0 then no shift correction occurs; hence the correction mechanism is stopped or not used at the noted value).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the first correction mechanism is configured to be stopped by the first mechanism exterior to the optical writing system, as taught by Takesue, for the purpose of providing correction when needed in the main-scanning direction.

5. Claims 6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922), as applied to claim 1 above, and further in view of Maeda (US20010028387).

- Nihei (in view of Suzuki) teaches at least two laser diodes along with a picture element clock.
- However, Nihei (in view of Suzuki) fails to specifically mention where the operation of shifting arbitrarily a phase of a picture element clock is carried out based on a scaling error factor.
- Maeda teaches where the operation of shifting arbitrarily a phase of a picture element clock is carried out based on a scaling error factor (refer to [0088], [0172], and [0178]).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the operation of shifting arbitrarily a phase of a picture element clock is carried out based on a scaling error factor, as taught by Maeda, for the purpose of utilizing a known way of operating a picture element clock.

With respect to claim 21, *the method of correcting data written by an optical writing system is rejected based on the functions provided by the apparatus.*

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922) and Maeda (US20010028387), as applied to claim 6 above, and further in view of Shimmura (US20040184859).

- Nihei (in view of Suzuki and Maeda) teaches the use of a scaling error factor.
- However, Nihei (in view of Suzuki and Maeda) fails to specifically mention where the scaling error factor is selectively input through an external input operation mechanism.
- Shimmura teaches where the scaling error factor is selectively input through an external input operation mechanism (refer to [0098] and [0099]), where the selective inputting of the scaling error factor corresponds to halftone portions as noted in applicant's disclosure (refer to PGPUBS # 2004/0155953, paragraphs [0172] - [0175]).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki and Maeda), where the scaling error factor is selectively input through an external input operation mechanism, as taught by Shimmura, for the purpose of providing the ability to control image properties by using an external operation mechanism – a commonly known form of providing/inputting control properties.

7. Claims 8-14, 17, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922) and Amada (US20030025782).

- Nihei teaches an optical writing system (refer to Fig. 21 and paragraph [0044]) that has at least two laser diodes (refer to [0039] and [0176]); a polygonal mirror (refer to element 204 and 307; and also paragraphs [0171] and [0176]); a first correction mechanism configured to scan data of two laser diodes by one scanning movement with said polygonal mirror (refer to paragraph [0225]), and correct a dot forming position of a terminating edge in a main scanning direction by shifting arbitrarily a phase of a picture element clocks (refer to paragraphs [0114] and [0038] – [0042]).
- It should be noted that Nihei mentions a second mechanism for correcting which involves a correction of an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to paragraphs [0200], [0201], and [0181]). Further, Suzuki also teaches a correction mechanism configured to correct an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to lines 5-30 of column 7). However, Nihei nor Suzuki specifically mentions where the second correction mechanism is configured to be initiated by an external mechanism. Amada teaches where the second correction mechanism is configured to be initiated by an external mechanism (refer to paragraph [0083]). It should be noted that the mention of manual operation, using an external control, would obviously encompass the initiating of a second correction mechanism.
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei, with a correction mechanism configured to correct an amount of deviation in a data writing

position along a vertical scanning direction to be approximately one laser diode line width, as taught by Suzuki and Amada, for the purpose of providing a way to regulate the amount of deviation in response to any degrading of image quality due to shifting, misalignment, etc. of the light beams and for the purpose of providing correction to an optical system as needed and when it is needed by an operator or user.

With respect to claim 9,

- Nihei (in view of Suzuki) fails to specifically mention where the second correction mechanism is configured to be stopped by said external mechanism.
- However, Amada teaches where the second correction mechanism is configured to be stopped by said external mechanism (refer to paragraph [0083]). It should be noted that the mention of manual operation, using an external control, would obviously encompass the starting and stopping of a second correction mechanism.
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the second correction mechanism is configured to be started and stopped by the second mechanism exterior to the optical writing system, as taught by Amada, for the purpose of providing correction to an optical system as needed and when it is needed by an operator or user.

With respect to claim 10,

- Nihei (in view of Suzuki) fails to specifically mention where the second correction mechanism is configured to have an operational mode set by the external mechanism.
- However, Amada teaches where the second correction mechanism is configured to have an operational mode set by the external mechanism (refer to paragraph [0083] and [0085]).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the second correction mechanism is configured to have an operational mode set by the external mechanism, as taught by Amada, for the purpose of providing operational control of an optical system as needed and when it is needed by an operator or user.

With respect to claims 11-14, these claims hold no patentable weight since the claims are referenced to the method of utilizing the optical writing system – when they should be referenced to an apparatus. Therefore, the claims are rejected with their parent claim (claim 8) because they merely recite a further limitation with respect to the process of using the optical writing system.

With respect to claims 17 and 18, no further limitation has been recited for the optical writing system. Rather, the applicant has recited the structure of the environment or the structure of other devices to be utilized with the optical writing system. Therefore, since no further limitation has been made to the optical writing system of the parent claim, the claims (claims 17 and 18) are rejected along with the parent claim (claim 8).

With respect to claim 19, *the method of correcting data written by an optical writing system is rejected based on the functions provided by the apparatus.*

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922) and Amada (US20030025782).
 - Nihei teaches an optical writing system (refer to Fig. 21 and paragraph [0044]) comprising: a first correction mechanism configured to scan data of two laser diodes by one scanning movement with said polygonal mirror (refer to paragraph [0225]), and correct a dot forming position of a terminating edge in a main scanning direction by shifting arbitrarily a phase of a picture element clock (refer to paragraphs [0114] and [0038] – [0042]). Also Nihei teaches where the first correction mechanism is configured to be started by a first mechanism exterior to said optical writing system (refer to paragraphs [0113], [0114], and [0131]).
 - It should be noted that Nihei mentions a second mechanism for correcting which involves a correction of an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to paragraphs [0200], [0201], and [0181]). Further, Suzuki also teaches a correction mechanism configured to correct an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to lines 5-30 of column 7). However, Nihei nor Suzuki specifically mentions where the second correction mechanism is configured to be called up/initiated externally. Amada ('025782) teaches where the second correction mechanism is

configured to be called up/initiated externally (refer to paragraph [0083]). It should be noted that the mention of manual operation, using an external control, would obviously encompass the calling up of a second correction means. Also, Nihei nor Suzuki fails to specifically mention a computer program product for use with an optical writing system, said computer program product comprising: a computer usable medium having computer readable program code means embodied in said medium configured to cause a correction of data written by an optical writing system. Amada ('025782) teaches a computer program product for use with an optical writing system (refer to Fig. 2), said computer program product comprising: a computer usable medium having computer readable program code means embodied in said medium configured to cause a correction of data written by an optical writing system (paragraph [0172]).

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei, with a correction mechanism configured to correct an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width, where the second correction mechanism is configured to be called up/initiated externally, and a computer program product for use with an optical writing system, said computer program product comprising: a computer usable medium having computer readable program code means embodied in said medium configured to cause a correction of data written by an optical writing system, as taught by Suzuki and Amada ('025782), for the purpose of providing a way to regulate the amount of

deviation in response to any degrading of image quality due to shifting, misalignment, etc. of the light beams and for the purpose of providing correction to an optical system as needed and when it is needed by an operator or user utilizing program code stored on a computer usable medium.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Amada (US20030025782).

- Nihei teaches an optical writing system (refer to Fig. 21 and paragraph [0044]) comprising: instructions to scan data of two laser diodes by one scanning movement with said polygonal mirror (refer to paragraphs [0326] and [0225]), instructions to correct a dot forming position of a terminating edge in a main scanning direction by shifting arbitrarily a phase of a picture element clock (refer to paragraphs [0326], [0038] – [0042], and [0114]).
- It should be noted that Nihei mentions instructions for correcting which involves a correction of an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to paragraphs [0326], [0200], [0201], and [0181]). However, Nihei fails to specifically mention a program storage device readable by a machine and embodying a program of instructions executable by the machine to correct data written by an optical writing system. Amada ('025782) teaches a program storage device readable by a machine and which can embody a program of instructions executable by the machine to correct data written by an optical writing system (refer to [0172]).

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei, with a program storage device readable by a machine and which can embody a program of instructions executable by the machine to correct data written by an optical writing system, as taught by Amada ('025782), for the purpose of providing a storage means for program code/instruction for a desired implementation/correction of an optical writing system.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922).

- Nihei teaches an optical writing system (refer to Fig. 21 and paragraph [0044]) that has at least two laser diodes (refer to [0039] and [0176]); a polygonal mirror means (refer to element 204 and 307; and also paragraphs [0171] and [0176]); a first correction means including means for scanning data of said two laser diode means with said polygonal mirror means (refer to paragraph [0225]), and means for correcting a dot forming position of a terminating edge in a main scanning direction, including means for shifting arbitrarily a phase of a picture element clock (refer to paragraphs [0114] and [0038] – [0042]). Also Nihei teaches first correction means includes means for being started from a first control means exterior to said optical writing system (refer to paragraphs [0113], [0114], and [0131]).
- It should be noted that Nihei mentions a second correction means including means for correcting an amount of deviation in a data writing position along a vertical

scanning direction to be approximately one laser diode line width (refer to paragraphs [0200], [0201], and [0181]). Further, Suzuki also teaches a correction mechanism configured to correct an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to lines 5-30 of column 7).

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei, with a correction mechanism configured to correct an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width, as taught by Suzuki, for the purpose of providing a way to regulate the amount of deviation in response to any degrading of image quality due to shifting, misalignment, etc. of the light beams.

11. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922), as applied to claim 24 above, and further in view of Amada (US20030025782).

- Nihei (in view of Suzuki) teaches a second correction means; however, Nihei (in view of Suzuki) fails to mention specifically where the second correction means is configured to be started and stopped by the second control means to the optical writing system.
- However, Amada teaches where the second correction means is configured to be started and stopped by the second control means to the optical writing system (refer

to paragraph [0083]). It should be noted that the mention of manual operation, using an external control, would obviously encompass the starting and stopping of a second correction means.

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the second correction means is configured to be started and stopped by the second control means to the optical writing system, as taught by Amada, for the purpose of providing correction to an optical system as needed and when it is needed by an operator or user.

12. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922), as applied to claim 25 above, and further in view of Amada (US20020149666).

- Nihei (in view of Suzuki) teaches where the first correction mean and the second correction means are configured to be controlled; however, Nihei (in view of Suzuki) fails to mention specifically a separate controlling of the first and second correction means.
- However, Amada teaches where a separate controlling of the first and second correction means (refer to paragraphs [0024] and [0198]).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), for a separate controlling of the first and second correction means, as

taught by Amada, for the purpose of providing correction where needed towards only the mechanism which requires adjustment rather than wasting resources on also making adjustments on a mechanism not requiring correction.

13. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922), as applied to claim 27 above, and further in view of Takesue (US20020063770).

- Nihei (in view of Suzuki) teaches a first correction means.
- However, Nihei (in view of Suzuki) fails to specifically mention where the first correction means is configured to be stopped by the first control means to the optical writing system.
- Takesue teaches a first correction means that is configured to be stopped by the first control means to the optical writing system (refer to paragraphs [0176]-[0179], and [0182]; note: that when the shifting step value is 0 then no shift correction occurs; hence the correction means is stopped or not used at the noted value).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the first correction means is configured to be stopped by the first control means to the optical writing system, as taught by Takesue, for the purpose of providing correction when needed in the main-scanning direction.

14. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922), as applied to claim 24 above, and further in view of Maeda (US20010028387).

- Nihei (in view of Suzuki) teaches at least two laser diodes along with a picture element clock.
- However, Nihei (in view of Suzuki) fails to specifically mention where the operation of shifting arbitrarily a phase of a picture element clock is carried out based on a scaling error factor.
- Maeda teaches where the operation of shifting arbitrarily a phase of a picture element clock is carried out based on a scaling error factor (refer to [0088], [0172], and [0178]).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the operation of shifting arbitrarily a phase of a picture element clock is carried out based on a scaling error factor, as taught by Maeda, for the purpose of utilizing a known way of operating a picture element clock.

15. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922) and Maeda (US20010028387), as applied to claim 29 above, and further in view of Shimmura (US20040184859).

- Nihei (in view of Suzuki and Maeda) teaches the use of a scaling error factor.

- However, Nihei (in view of Suzuki and Maeda) fails to specifically mention where the scaling error factor is selectively input through an external input operation means.
- Shimmura teaches where the scaling error factor is selectively input through an external input operation means (refer to [0098] and [0099]), where the selective inputting of the scaling error factor corresponds to halftone portions as noted in applicant's disclosure (refer to PGPUBS # 2004/0155953, paragraphs [0172] - [0175]).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki and Maeda), where the scaling error factor is selectively input through an external input operation means, as taught by Shimmura, for the purpose of providing the ability to control image properties by using an external operation means – a commonly known form of providing/inputting control properties.

16. Claims 31-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nihei (US20030025785) in view of Suzuki (US6281922) and Amada (US20030025782).

- Nihei teaches an optical writing system (refer to Fig. 21 and paragraph [0044]) that has at least two laser diodes (refer to [0039] and [0176]); a polygonal mirror means (refer to element 204 and 307; and also paragraphs [0171] and [0176]); a first correction means including means for scanning data of two laser diodes by one scanning movement with said polygonal mirror means (refer to paragraph [0225]), and means for correcting a dot forming position of a terminating edge in a main

scanning direction by shifting arbitrarily a phase of a picture element clock (refer to paragraphs [0114] and [0038] – [0042]).

- It should be noted that Nihei mentions a second means for correcting which involves a correction of an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to paragraphs [0200], [0201], and [0181]). Further, Suzuki also teaches a correction means configured to correct an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width (refer to lines 5-30 of column 7). However, Nihei nor Suzuki specifically mentions where the second correction means is configured to be initiated by an external control means. Amada teaches where the second correction means is configured to be initiated by an external control means (refer to paragraph [0083]). It should be noted that the mention of manual operation, using an external control, would obviously encompass the initiating of a second correction means.
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei, with a correction means configured to correct an amount of deviation in a data writing position along a vertical scanning direction to be approximately one laser diode line width, as taught by Suzuki and Amada, for the purpose of providing a way to regulate the amount of deviation in response to any degrading of image quality due to shifting, misalignment, etc. of the light beams and for the purpose of providing

correction to an optical system as needed and when it is needed by an operator or user.

With respect to claim 32,

- Nihei (in view of Suzuki) teaches a second correction means; however, Nihei (in view of Suzuki) fails to mention specifically where the second correction means is configured to be stopped from the control means external to the optical writing system.
- However, Amada teaches where the second correction means is configured to be stopped from the control means external to the optical writing system (refer to paragraph [0083]). It should be noted that the mention of manual operation, using an external control, would obviously encompass the starting and stopping of a second correction means.
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the second correction means is configured to be started and stopped by external control means to the optical writing system, as taught by Amada, for the purpose of providing correction to an optical system as needed and when it is needed by an operator or user.

With respect to claim 33,

- Nihei (in view of Suzuki) teaches a second correction means; however, Nihei (in view of Suzuki) fails to mention specifically where the second correction means includes means for having an operational mode set, in accordance with a type of original document, from the control means external to said optical writing system.
- However, Amada teaches where the second correction means includes means for having an operational mode set, in accordance with a type of original document, from the control means external to said optical writing system (refer to paragraphs [0082] and [0083]).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify an optical writing system, as taught by Nihei (in view of Suzuki), where the second correction means includes means for having an operational mode set, in accordance with a type of original document, from the control means external to said optical writing system, as taught by Amada, for the purpose of providing appropriate correction for a type of document for outputting high quality images (i.e. pictures, characters, etc.) to be utilized in an optical writing system.

With respect to claims 34-37, these claims hold no patentable weight since the claims are referenced to the method of utilizing the optical writing system – when they should be referenced to an apparatus. Therefore, the claims are rejected with their parent claim (claim 31) because they merely recite a further limitation with respect to the process of using the optical writing system.

Allowable Subject Matter

17. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claim 20 is allowable over the art of record because the prior art does not teach a method of correcting data written by an optical writing system, comprising the steps of: scanning data of at least two laser diodes by one scanning movement with a polygonal mirror; correcting a dot forming position of a terminating edge in a main scanning direction by shifting arbitrarily a phase of a picture element clock; and correcting an amount of deviation in a data writing position along a vertical scanning direction to be approximately one line width; and forming an image, wherein if an image to be formed is not mono-color said step of correcting a dot forming position occurs after said step of correcting an amount of deviation, wherein the setting of said step of correcting an amount of deviation is carried out depending on a type of original document, said type of original document selected from the group comprising a character type, a photography type, and a mixture of character and photography type, wherein if said type of original document is said character type, said second correction mechanism is configured to enable correction of an amount of deviation in a data writing position in accordance with a first selected difficulty level; if said type of original document is said photography type, said second correction mechanism is configured to be placed in a state comprising one of disabled, and enabled to correct an amount

of deviation in data writing position in accordance with a second selected difficulty level; if said type of original document said mixture of character and photography type, said second correction mechanism is configured to be placed in a state comprising one of disabled, and enabled to correct an amount of deviation in data writing position in accordance with a third selected difficulty level; and if said type of original document is neither said character type, said photography type, and said mixture of character and photography type, said second correction mechanism is configured to be placed in a state comprising one of disabled, and enabled to correct an amount of deviation in data writing position in accordance with a fourth selected difficulty level.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos A. Martinez whose telephone number is (571)272-8349. The examiner can normally be reached on 8:30 am - 5:00 pm (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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